

CLAIMS

1. Improved reaction chamber for an epitaxial reactor comprising a belljar (14) made of insulating and transparent material, such as quartz, a susceptor (24) provided with disk-shaped cavities (34a-n) for receiving wafers (36a-n) of material to be treated and having an insulating and chemically resistant plate (40) arranged above it, characterized by using:

a diffuser (54) formed by a cap (52) supplied by a central dome-piece (88) connected to a symmetrical annular distribution chamber (104) having a plurality of pipes (106a-f) of the same length which connect the said annular chamber (104) of the cap to a dome zone (42, 44) of the belljar situated just underneath a neck (46) connecting an upper flange (48) to the dome (42, 44), said plurality of pipes (106a-f) ensuring a uniform distribution of flow at a lower speed:

- a cylindrical zone of the belljar (14) extended above the plate (40) supported above the susceptor so as to eliminate any interference between the plate (40) and shoulder (42);

a minimum internal diameter of the belljar (14) so as to keep the belljar (14) as far away as possible from the susceptor (24); and

on the corners of the susceptor (24), in its upper zone, projecting baffles (122a-g) inserted into recesses formed in the body of the said susceptor (24), said baffles (122a-g) having a length about half that of the corners of the susceptor (24).

2. Reaction chamber for an epitaxial reactor, according to Claim 1, characterized in that the cap (52) of the diffuser (54) is fixed to an annular flange (56) which is in turn fixed to the upper thickened flange (48) of the belljar (14) by means of a pair of two half counter-flanges (82a, 82b) gripping the annular flange (56) against the upper flange (48) of the belljar (14).

3. Reaction chamber for an epitaxial reactor, according to Claim 2, characterized in that fixing of the cap (52) of the diffuser (54) to the annular flange (56) is performed by means of a plurality of spring-loaded tie-rods (58a-c) which push in an elastic manner the cap (52) against the annular flange (56),

4. Reaction chamber for an epitaxial reactor, according to Claims 2 and 3, characterized in that the cap (52) is closed at the top by a flange (86)

terminating in a dome-piece (88) communicating with a sleeve (96) for connection to an external source of gas to be used in the same reaction chamber, which dome-piece is provided with a bottom (100) defining at least one circular slit for ensuring a rigorously uniform distribution of gas to an annular chamber (104) for supplying the plurality of pipes (106a-f) emerging from the distributor (54) inside the belljar (14).

5. Reaction chamber for an epitaxial reactor, according to Claim 4, characterized in that, in addition to the slit in the bottom (100), a further annular slit (102) helps ensure the uniform distribution of gas to the annular chamber (104) supplying the outlet pipes (106a-f).

6. Reaction chamber for an epitaxial reactor, according to Claims 4 and 5, characterized in that the cap (52) of the distributor (54) comprises an internal chamber (114) for the flow of a cooling fluid.

7. Reaction chamber for an epitaxial reactor, according to Claims 4, 5 and 6, characterized in that the outlet pipes (106a-f) are made of a material which is chemically inert with respect to the gas used in the belljar.

8. Reaction chamber for an epitaxial reactor, according to Claim 7, characterized in that the outlet pipes (106a-f) are made of glass.

9. Reaction chamber for an epitaxial reactor, according to Claim 7, characterized in that the outlet pipes (106a-f) are made of ceramic material.

10. Reaction chamber for an epitaxial reactor, according to Claim 7, characterized in that the outlet pipes (106a-f) are made of quartz.

11. Reaction chamber for an epitaxial reactor, according to the preceding claims, characterized in that the baffles (122a-f) fixed to the susceptor (24) are made of material chemically inert with respect to the gases used in the said chamber.

12. Reaction chamber for an epitaxial reactor, according to Claim 11, characterized in that the baffles (122a-f) fixed to the susceptor (24) are made of glass.

13. Reaction chamber for an epitaxial reactor, according to Claim 11, characterized in that the baffles (122a-f) fixed to the susceptor (24) are made of ceramic material.

14. Reaction chamber for an epitaxial reactor, according to Claim 11, characterized in that the baffles (122a-f) fixed to the susceptor (24) are made of quartz.

15. Reaction chamber for an epitaxial reactor, according to Claim 11, characterized in that the baffles (122a-f) fixed to the susceptor (24) are made of graphite lined with silicon carbide.